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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,208	10/30/2003	Frank Joseph Pompei	HOLOS-009XX	2211
207 7590 10/17/2007 WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER PAUL, DISLER	
			ART UNIT 2615	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/697,208	<b>Applicant(s)</b> POMPEI, FRANK JOSEPH	
	<b>Examiner</b> Disler Paul	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/30/04</u> . | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION**

***Response to Arguments***

The examiner's error in mistakenly rejected Pompei based on its own application has been withdrawn, thus a new non-final rejection will be based on the corrected application of Pompei of ("US 2001/0007591 A1").

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3,8-9,18-19,22-24,29-30,36,41 are rejected under 35 U.S.C. 102(b) as being anticipated by Pompei ("US 2001/0007591 A1").

Re claim 1, Pompei discloses a system for reproducing audio signals, comprising: at least one source of audio signals, the audio signals corresponding to at least one audio channel ("fig.1/(101);page 2[0022] line 11-12-respective audio signal generated"); a modulated signal generator configured to generate an ultrasonic carrier signal modulated with at least one of the audio signals ("fig.1/114; page 2[0022] line 7-9"); a driver amplifier configured to amplify the modulated ultrasonic carrier signal ("fig.1/(118);page 2[0023] line 7-10"); and at least one directional loudspeaker, the directional loudspeaker including at least one acoustic transducer configured to receive the modulated ultrasonic carrier signal amplified by the driver amplifier, and to project a sound beam representing

the modulated ultrasonic carrier signal through a propagation medium along a pre-selected path to reproduce the at least one audio signal along at least a portion of the path("page 2[0023] line 11-14 and page 3[0033] line 13-17 and page 4[0039] line 7-17").

Re claim 2, the system of claim 1 wherein the audio signals correspond to a plurality of audio channels("fig.1-multiple channel (102-104) generated plurality of audio signals; page 2[0022] line 11-12"), wherein the at least one directional loudspeaker comprises a plurality of directional loudspeakers, and wherein a separate audio channel is provided for each directional loudspeaker("fig.21;page2[0025]").

Re claim 3, the system of claim 1 wherein the audio signals correspond to a plurality of audio channels, and wherein the modulated signal generator is configured to combine the plurality of audio channels and to generate the ultrasonic carrier signal modulated with the combined audio channels ("fig.1/(110-114);page 2[0022] line 13-27").

Re claim 8, the system of claim 1 wherein the acoustic transducer is selected from the group consisting of a piezoelectric transducer, an electrostatic transducer, a PVDF film transducer, and an electrostrictive film transducer ("page 1[0004] line 11-12 page 2[0025] line 12").

Re claim 9, the system of claim 1 further including a delay circuit configured to apply a relative phase shift across a plurality of frequencies of the modulated ultrasonic carrier signal to steer, focus, or shape the

sound beam projected by the directional loudspeaker("fig.1/(120);page 2[0023] line 10-12").

Re claim 18, the system of claim 1 further including a fan configured to cool the system("fig.1/130; page 5[0044] line 4-7").

Re claim 19, the system of claim 18 wherein the fan is activated automatically when a system temperature exceeds a predetermined level("page 5[0044] line 7-10-desired atmospheric conditions is maintained").

Re claims 22-24,29-30 with respect to a method have been analyzed and rejected with respect to claim 1-3,8-9 respectively.

Re claim 36,41 in regard to receiver/microphones to receive audio signals has been analyzed and rejected with respect to claim 1.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7,10,20-21,26-28,31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US2001/0007591 A1") and further in view of Milsap.("US 2003/0185404 A1").

Re claim 5, the system of claim 1 with the directional loudspeaker, wherein the directional loudspeaker is a parametric array; wherein the system further includes a parametric array processor configured to control the parametric array (fig.1 (118,122); page 4[0038] line 10-16), However Pompei fail to disclose the system further including at least one sensor configured to detect a distance from the directional loudspeaker to a user of the system or to detect a position of the user relative to the system, wherein the parametric array processor is configured to allow at least one parameter therefore to be adjusted based upon one or more of the detected distance from the directional loudspeaker to the user of the system, and the detected position of the user relative to the system. But, Milsap disclosed of a array sound system wherein the sensor configured to detect a distance from the directional loudspeaker to a user of the system or to detect a position of the user relative to the system, wherein the parametric array processor is configured to allow at least one parameter therefore to be adjusted based upon one or more of the detected distance from the directional loudspeaker to the user of the system, and the detected position of the user relative to the system (fig.2-3; page 4[ 0043-0044]/adjustment of delay per speaker control based on detected position) for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space. Thus, taking the combined teaching of Pompei and Milsap as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the

invention to have incorporated the limitation wherein array sound system wherein the sensor configured to detect a distance from the directional loudspeaker to a user of the system or to detect a position of the user relative to the system, wherein the parametric array processor is configured to allow at least one parameter therefore to be adjusted based upon one or more of the detected distance from the directional loudspeaker to the user of the system, and the detected position of the user relative to the system for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space.

Re claim 6, the combined teaching of Pompei and Paritsky et al. as a whole, teach the system of claim 5, wherein the modulated signal generator is configured to generate an ultrasonic signal having characteristics based at least in part on the detected distance to the system user or the detected position of the system user ("Pompei, fig.1(112,114)").

Re claim 7, The system of claim 5 wherein the sensor comprises a device selected from the group consisting of an optical ranging device, an acoustic ranging device, and an infrared ranging device ("Paritsky, page 1[0013] line 6-7").

Re claim 10, the system of claim 1, However, Pompei never limit the system to be selected from the group consisting of a television, a radio, an audio tape player, a phonograph, a compact disk player, a digital video disk player, a laser disk player, a video game, a desktop computer, a laptop computer, and an MP3 system. Official Notice is taken that, using a system

for reproducing audio signals, to be selected from the (above) groups is commonly known, thus it would be obvious for one of the ordinary skill in the art to have the system be selected from the group consisting of a television, a radio, an audio tape player, a phonograph, a compact disk player, a digital video disk player, a laser disk player, a video game, a desktop computer, a laptop computer, and an MP3 system for purpose of providing directional loudspeakers accompany with the system.

However, Pompei fail to disclose of the wherein the directional loudspeaker is configured to direct the sound beam along the preselected path toward a user of the system, thereby preventing individual other than the system user from hearing sound produced by the system, But, Milsap disclosed of a array sound system wherein the directional loudspeaker is configured to direct the sound beam along the preselected path toward a user of the system, thereby preventing individual other than the system user from hearing sound produced by the system (fig.2-3; page 4[ 0043-0044]/adjustment of delay per speaker control based on detected position) for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space, thus taking the combined teaching of Pompei and now Milsap as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have incorporated such a array sound system wherein the directional loudspeaker is configured to direct the sound beam along the preselected path toward a user of the system, thereby preventing individual other than the system user from hearing sound produced by the system for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space.



Re claim 20, the system of claim 1, However, Pompei fail to disclose of the further including a swing-arm assembly to mount the directional loudspeaker to a ceiling, a floor, or a wall. However, official notice is taken the concept of having a swing-arm assembly to mount the directional loudspeaker to a ceiling, a floor, or a wall is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to have incorporated such any of the swing-arm assembly to mount the directional loudspeaker to a ceiling, a floor, or a wall for positioning the speaker for providing optimum sound directions.

However, Pompei fail to disclose of the directing of the projected sound beam along the preselected path, however, Milsap disclose of a system wherein the projected sound beam along the preselected path (fig.2-3; page 4[0043-0044]) for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space thus taking the combined teaching of Pompei and now Milsap as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have incorporated such a system wherein the projected sound beam along the preselected path for the purpose of allowing audio frequency sound to be heard in only selected regions within the room or other auditory space.

Re claim 21 with respect to claim assembly has been analyzed and rejected with respect to claim 20 above.

Re claims 26-28,31 with respect to a method have been analyzed and rejected with respect to claim 5-7,10 respectively.

5. Claims 11-13,32-34,37-39,42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US 2001/0007591 A1") and further in view of Schmmoll,III("US 4,308,422").

Re claim 11, Pompei disclose the system of claim 1, However, he fail to disclosed the system further including a second amplifier and at least one non-directional loudspeaker, the second amplifier being configured to amplify one or more audio signals corresponding to at least one of the audio channels and to drive at least one non-directional loudspeaker. But Schmmoll,III disclose for modulating a musical tone in which including an amplifier and at least one non-directional loudspeaker, the amplifier being configured to amplify one or more audio signals corresponding to at least one of the audio channels and to drive at least one non-directional loudspeaker ("fig.2/(amplifier(28) serve to drive the speaker (32)") for the purpose of separately reproducing the signal produced in the first channel, thus taking the now combined teaching of Pompei and Schmmoll,III as a whole, it would have been obvious for one of ordinary skill in the art to modify Pompei by incorporating the second amplifier and at least one non-directional loudspeaker, the second amplifier being configured to amplify one or more audio signals corresponding to at least one of the audio channels and to drive at least one non-directional loudspeaker for the purpose of separately reproducing the signal produced in the first channel.

Re claim 12, the combined teaching of Pompei and Schmoll, II teach the system of claim 11 wherein the modulated signal generator and the second amplifier are configured to receive the at least one audio channel in parallel ("fig. 2/-modulated generator (22, 26) and second amplifier (28) in parallel for receiving audio signals").

Re claim 13, has been analyzed and rejected with respect to claim 12.

Re claim 32-34, 37-39, 42-44 similarly, have been analyzed and rejected with respect to claim 11-13 respectively.

6. Claim 14, 35, 40, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US 2001/0007591 A1") and further in view of Nourse et al. ("US 2003/0063755 A1").

Re claim 14, the system of claim 11 with the modulated signal generator, However, the combined teaching of Pompei and schmoll as a whole, fail to teach of the selected signal generator is configured to selectably generate the ultrasonic carrier signal modulated with the at least one of the audio signals, and the second amplifier is configured to selectably amplify the one or more audio signals, thereby allowing only the directional loudspeaker, only the non-directional loudspeaker, or both the directional loudspeaker and the non-directional loudspeaker, to reproduce the audio signals. But, Nourse et al. disclose a system with a centralized speaker in which selected signal generator is configured to selectably generate the carrier signal modulated with the at least one of the audio signals, and the second amplifier is configured to selectably amplify the one or more audio signals, thereby allowing only the selected speakers to

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reproduce audio signals ("Page 1[0003] line 5-7;page 1[0006] line 5-8") for the purpose of providing flexibility in a speaker system network by using separate audio signals at each speaker. Thus, taking the combined teaching of Pompei and Schmoll and Nourse et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Pompei and schmoll as a whole, by incorporating the selected signal generator is configured to selectably generate the ultrasonic carrier signal modulated with the at least one of the audio signals, and the second amplifier is configured to selectably amplify the one or more audio signals, thereby allowing only the directional loudspeaker, only the non-directional loudspeaker, or both the directional loudspeaker and the non-directional loudspeaker, to reproduce the audio signals for the purpose of providing flexibility in a speaker system network by using separate audio signals at each speaker.

Re claim 35,40,45 similarly, have been analyzed and rejected with respect to claim 14 respectively.

7. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US 2001/0007591 A1") and further in view of Shinohara ("US 2003/0005461 A1").

Re claim 16, Pompei discloses the system of claim 1, However, he fail to disclose the system further including a remote signal receiver and a remote control device configured to generate remote signals in response to a user input, wherein the remote signal receiver is configured to receive the

remote signals and generate control signals for controlling a system characteristic selected from the group consisting of a volume setting, a tone setting, and an output switch selection. But, Shinohara discloses a system which include a remote signal receiver and a remote control device configured to generate remote signals in response to a user input, wherein the remote signal receiver is configured to receive the

remote signals and generate control signals for controlling a system characteristic selected from the group consisting of a volume setting, a tone setting, and an output switch selection ("fig.1; page 2[0018] line 1-13") for the purpose of selectively displayed stored or real time captioning by the viewer. Thus, taking the combined teaching of Pompei and Shinohara as a whole, it would have been obvious for one of ordinary skill in the art to modify Pompei by incorporating the remote signal receiver and a remote control device configured to generate remote signals in response to a user input, wherein the remote signal receiver is configured to receive the

remote signals and generate control signals for controlling a system characteristic selected from the group consisting of a volume setting, a tone setting, and an output switch selection for the purpose of selectively displayed stored or real time captioning by the viewer.

Re claim 17, the system of claim 16 wherein the remote control device is selected from the group consisting of an optical remote control device, an acoustic remote control device, an infrared remote control device, and a radio frequency remote control device ("fig.2/22").

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8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US 2001/00007591 A1") and further in view of Kurtz ("US 6,754,452 B2).

Re claim 15, Pompei disclose the system of claim 1 with the modulated signal generator, However, He fail to disclose the modulated signal generator includes an independent volume control. However, Kurtz disclose of a system in which a generator includes an independent volume control ("fig.2-4-generator (230) with independent volume control (250)") for the purpose of allowing the user to adjust the machine volume to fit the particular office environment. Thus, taking the combine teaching of Pompei and Kutz as a whole, it would have been obvious for one of ordinary skill in the art to modify Pompei by incorporating the generator includes an independent volume control for the purpose of allowing the user to adjust the machine volume to fit the particular office environment as taught by Kutz.

9. Claims 4, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pompei ("US2001/0007591 A1") and further in view of official Notice.

Re claim 4, the system of claim 1 wherein the audio signals correspond to a plurality of audio channels, the plurality of audio channels being selected from the group consisting of a first channel, a second audio channel, a third audio channel, and a fourth audio channel ("fig.1-multiple audio channels")

(102-104) being generated corresponding to audio signals, signals channel being outputted at different locations by array transducers according to plurality of speakers (fig.2a);page 3[0029] line 15-20;page 3[0033] line 13-17"), and wherein the modulated signal generator is configured to combined the plurality of audio channels, and to generate the ultrasonic carrier signal modulated with the combined audio channels (fig.1 (110,112-4); page 2[0022] line 11-16), however, Pompei fail to explicitly disclosed the plurality of channel consisting to a first location in front of a user of the system, a second location in back of the system user, a third location to the left of the system user, to a fourth location to the right of the system user, Official Notice is taken that this limitation is commonly known, thus it is obvious to one of ordinary skills in the art that such different locations would be in front, back, left, right , of a user of the system for purpose of providing the user with equally sound outputs at varying locations.

Re claims 25 with respect to a method have been analyzed and rejected with respect to claim 4 respectively.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-272-2222. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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